



Naval Medical Research and Development

Enterprise Laboratories

[Home](#)[Leadership](#)[Laboratories](#)[Collaboration](#)[News & Media](#)[Resources](#)

News Releases

Military Medicine Provides 'World-Class Solutions for Combat Casualties'

Released: 3/10/2017

Story Courtesy of Health.mil



A double leg amputee goes through physical therapy

BETHESDA, MD – Experts across the Military Health System are collaborating with civilian researchers on an advanced alternative to socket-based prosthetics for some amputees. Osseointegration, a process that attaches the prosthesis directly to the skeleton, can improve comfort and mobility for qualified patients with amputations – Experts across the Military Health System are collaborating with civilian researchers on an advanced alternative to socket-based prosthetics for some amputees. Osseointegration, a process that attaches the prosthesis directly to the skeleton, can improve comfort and mobility for qualified patients with amputations.

Navy Cmdr. (Dr.) Jonathan A. Forsberg, an orthopedic oncologist at Walter Reed National Military Medical Center in Bethesda, Maryland, and an investigator at the Naval Medical Research Center, said he treats patients who are newly injured and those who have been living with amputations for many years.

“Developing osseointegration as a capability within the Department of Defense makes good on our commitment to provide world-class solutions for combat casualties throughout the entire spectrum of care,” said Forsberg. Although clinical trials for osseointegration have been performed elsewhere around the world, the clinical trial at Walter Reed is the first of its kind to be performed in the United States.

The initial surgery for osseointegration attaches a fixture or implant onto or within the bone, and the bone takes about three months to grow into the implant. The second surgery prepares the soft tissue for an attachment, called an abutment, which protrudes through the skin. Similar to the way a dental implant is secured to the jaw bone, a prosthetic limb is attached directly to the abutment. (Courtesy graphic)

News Releases

[Surgery at Sea: Studying the Effects of High Deck Accelerations on Surgical Tasks](#)

[79th Medical Wing Commanding Officer Visits Naval Medical Research Center](#)

[The Rudder: Navy Medical Service Corps Selects NMRC Own as Navy Medicine's Aerospace Experimental Psychology Officer of the Year 2016](#)

[NAMRU-SA Researchers Developing Field Portable Sterilizer](#)

[Turning the Table on Mosquitos –Navy Researchers Infect Mosquitos with Malaria to Mass Produce Critical Reagents](#)

[NMRC Deputy Director for Infectious Diseases Presents on Medical Research in the U.S. Navy at Alma Mater](#)

[Physical Activity May Diminish Risk of Mood Disorders in Genetically Predisposed Individuals](#)

[The Rudder: Navy Medical Service Corps Selects NMRC Own as Navy Medicine's Physiology Officer of the Year 2016](#)

[Military Medicine Provides 'World-Class Solutions for Combat Casualties'](#)

[NAMRU-3 Vector Biology Teams Up with Nigerian Federal Ministry of Health Center Colleagues](#)

[R&D Chronicles: The Mosquito Fighters, Part XII: The Quest for Medicine's Holy Grail](#)

[Naval Medical Research Center 2016 Junior Officer of the Year](#)

[NHRC Researcher Studies Impact of Operational Postures on Low Back Pain](#)

[Naval Medical Research Center Welcomes New Director for Field Laboratory Operations](#)

[NAMRU-2 Establishes Regional Reference Laboratory in Cambodia](#)

The Osseointegration Program within the Uniformed Services University of Health Sciences-Walter Reed Department of Surgery, is headed by Forsberg and Army Lt. Col. (Dr.) Benjamin Kyle Potter, chief of orthopedics at Walter Reed. They hope to improve function and quality of life while minimizing risk for these wounded warriors who have suffered visible and devastating injuries, said Potter.

“We’re unique here at Walter Reed and San Antonio within the military system to have these amputee centers of excellence,” said Potter. “This is one of several technologies that are here, or on the near horizon, and have the potential to dramatically improve the outcomes following amputation.”

A four-year Food and Drug Administration clinical trial began in October using the Osseointegration Prosthesis for the Rehabilitation of Amputees (OPRA) – one of two implants currently available. At the moment, the study involves patients with transhumeral, or above elbow, amputations. However, Walter Reed is also looking at transfemoral, or above knee, amputees, said Potter.

"Traditional socket-based prosthesis rely on soft tissue to transfer the weight of the load from the ground to the skeleton," said Forsberg. "Osseointegration eliminates the need for soft tissue attachment."

The initial surgery for osseointegration attaches a fixture or implant onto or within the bone, and the bone takes about three months to grow into the implant. The second surgery prepares the soft tissue for an attachment, called an abutment, which protrudes through the skin. Similar to the way a dental implant is secured to the jaw bone, a prosthetic limb is attached directly to the abutment. Over the next six months, the patient progressively transfers force to the skeleton in a controlled manner so that no loosening of any part occurs.

Earlier this year, the program’s first patient, former Marine Sgt. Michael Frazier, received another type of osseointegrated implant from Potter and Forsberg: the DoD-funded Compress® Transdermal Implant. In May 2011, Frazier stepped on an improvised explosive device in Trek Nawa, Afghanistan, losing both legs to the blast.

"Being in a wheelchair 24/7 started to take a toll on my mind and body, so I needed a change, to get up and walk again," said Frazier, who medically retired in December 2012. He was walking around in about a month after the procedure, and felt more comfortable and confident, he said. "[The leg is] easier to put on and you have so much more control and feeling because it’s pretty much a part of your body."

Many institutions are collaborating with Walter Reed’s osseointegration program, including the Office of Naval Research, Uniformed Services University of the Health Sciences, University of California - San Francisco, and several other universities.

"By centralizing osseointegration at one DoD institution, which is at Walter Reed right now, we are able to standardize certain processes – patient selection, evaluation, surgery, rehabilitation – before pushing it out to the rest of the DoD community," said Forsberg.

[Navy Medicine Researchers Focus on Monitoring the Immune System to Diagnose and Treat Traumatic Injuries](#)

[Navy Lab Opens a State of the Art Insectary in the Amazon Region of Peru](#)

[New Bio-Informatics Software Allows for Interactive, Real-Time Analysis of Sequence Data](#)

[Millennium Cohort Study Examines Self-Reported Back Pain and Combat Deployment](#)

[R&D Chronicles: The Mosquito Fighters, Part XI: Malaria in the Dragon’s Den, 1964-1975](#)

Enterprise

[About US](#)

Laboratories

[NMRC](#)
[NHRC](#)
[NSMRL](#)
[NAMRU-D](#)
[NAMRU-SA](#)
[NMRC-Asia](#)
[NAMRU-3](#)
[NAMRU-6](#)

Collaboration

[Working With Us](#)
[Partnerships](#)
[Research Services](#)
[Naval Research](#)
[Business Contacts](#)

News

[News & Media](#)
[News Releases](#)
[Fact Sheets](#)
[Newsletters](#)
[Media Inquiries](#)

Resources

[BUMED](#)
[Gorgas/WRAIR](#)
[Library](#)
[MED IG Hotline](#)
[MHS](#)
[NSC](#)
[ONR](#)
[USUHS](#)
[WRNMMC](#)
[USMC](#)
[USN](#)

